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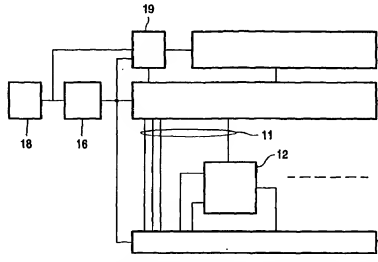
(54) Title: INSTRUCTION CONTROLLED DATA PROCESSING DEVICE



(57) Abstract: The data processing device has a plurality of functional units and issues instructions in successive instruction cycles. Instructions of a first type are each intended for one functional unit at a time. An instruction of a second type causes a combination of functional units to respond in the same instruction execution cycle, a result from one functional unit being used by another as part of the execution of the same instruction. Preferably, the device supports alternative operation at a number of different instruction cycle rates, dependent on whether an executed program segment contains instructions of the second type. The fastest instruction cycle rate does not allow execution of the instruction of the second type, because operation by different functional units does not fit within the instruction execution cycle. When possible, the device saves power by switching to a slower clock rate, in which case instructions of the second type are executed to save additional power, by reducing the number of instructions that have to be issued.

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